

Appln No. 10/722,002
Haller et al.
Office Action dated December 29, 2005

This listing of claims will replace all prior versions and listing of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A heat transfer fluid containing heat exchanger for a fluid circuit through which a heat transfer fluid runs, in which the heat exchanger is a heating radiator comprising:

at least one manifold delimiting an inlet and an outlet for the heat transfer fluid;

circulation ducts for the heat transfer fluid which are inserted between the inlet and the outlet;

heat-exchange surfaces associated with the heat transfer fluid circulation ducts and able to be swept by a flow of air that is to be conditioned;

cavities ~~designed to containing~~ a heat storage fluid, situated adjacent to the heat transfer fluid circulation ducts; and

at least one conduit which communicates with the cavities,

whereby the cavities associated with the heat-exchange surfaces in such a way that the heat storage fluid is able to exchange heat with the air flow that sweeps the heat-exchange surfaces if the circulation of the heat transfer fluid through the circuit is stopped, and wherein the heat storage fluid is a phase-change fluid with a melting point of between 60 and 90°C.

2. (previously presented) The heat exchanger as in claim 1, further comprising a multiplicity of parallel flat tubes having two opposed large faces and in which the ducts and the cavities are formed, and a multiplicity of corrugated inserts forming heat-exchange surfaces, each of which is arranged between two adjacent tubes.

3. (withdrawn) The heat exchanger as in claim 2, wherein each flat tube is made up of two parts in the form of plates, namely a part in which the ducts are formed and a part in which the cavities are formed.

4. (withdrawn) The heat exchanger as claimed in claim 2, wherein each flat tube is of one piece, and in that the ducts are arranged along one of the large faces, while at least one cavity is arranged along the other large face.

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5. (currently amended) A heat exchanger for a fluid circuit through which a heat transfer fluid runs, comprising:

at least one manifold delimiting an inlet and an outlet for the heat transfer fluid;

circulation ducts for the heat transfer fluid which are inserted between the inlet and the outlet;

heat-exchange surfaces associated with the heat transfer fluid circulation ducts and able to be swept by a flow of air that is to be conditioned;

cavities designed to contain a heat storage fluid, situated adjacent to the heat transfer fluid circulation ducts; and

a multiplicity of parallel flat tubes having two opposed large faces and in which the ducts and the cavities are formed, and a multiplicity of corrugated inserts forming heat-exchange surfaces, each of which is arranged between two adjacent tubes,

whereby the cavities associated with the heat-exchange surfaces in such a way that the heat storage fluid is able to exchange heat with the air flow that sweeps the heat-exchange surfaces if the circulation of the heat transfer fluid through the circuit is stopped, and The heat exchanger as claimed in claim 2, wherein each flat tube is of one piece, the ducts are arranged in groups between the large faces, and the cavities are arranged in groups between the large faces, the groups of ducts alternating with the groups of cavities.

6. (previously presented) The heat exchanger as claimed in claim 1, further comprising a multiplicity of flat tubes in the shape of a hairpin or of a capital U, in which the ducts and the cavities are formed, and a multiplicity of corrugated inserts forming heat-exchange surfaces, each of which is arranged between two adjacent tubes.

7. (previously presented) The heat exchanger as claimed in claim 6, wherein each U-shaped flat tube is of one piece.

8. (withdrawn) The heat exchanger as claimed in claim 1, further comprising a flat tube in the form of a coil in which the ducts and the cavities are formed.

9. (withdrawn) The heat exchanger as claimed in claim 8, wherein the coil-shaped flat tube is formed of a multiplicity of U-shaped inner tubes in

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which the ducts are formed and of a coil-shaped outer tube surrounding the U-shaped tubes and in which the cavities are formed.

10. (previously presented) The heat exchanger as in claim 2, wherein the tubes are formed by extruding a metallic material, advantageously one based on aluminum.

11. (previously presented) The heat exchanger as in claim 6, wherein the tubes are formed by extruding a metallic material, advantageously one based on aluminum.

12-13. (cancelled)

14. (currently amended) The heat exchanger as in claim 6-5, further comprises at least one conduit which communicates with the cavities.

15-17. (cancelled)

18. (currently amended) The heat exchanger as in claim 1, wherein ~~it is made in the form of a~~ the heating radiator designed to have a heating fluid is found in the circulating ducts for the heat transfer fluid of the heat exchanger, running runs through it the circulating ducts and to heats up the flow of air which sweeps across the heat-exchange surfaces, and ~~in such~~ in such that the heat storage fluid constitutes a reserve of heat, so that the heat storage fluid is capable of heating up the flow of air which sweeps across the heat-exchange surfaces if the circulation of the heating fluid through the heating radiator is temporarily stopped.

19. (currently amended) The heat exchanger as in claim 2, wherein ~~it is made in the form of a~~ the heating radiator designed to have a heating fluid is found in the circulating ducts for the heat transfer fluid of the heat exchanger, running runs through it the circulating ducts and to heats up the flow of air which sweeps across the heat-exchange surfaces, and ~~in such~~ in such that the heat storage fluid constitutes a reserve of heat, so that the heat storage fluid is capable of heating up the flow of air which sweeps across the heat-exchange surfaces if the circulation of the heating fluid through the heating radiator is temporarily stopped.

20. (withdrawn) The heat exchanger as in claim 3, wherein it is made in the form of a heating radiator designed to have a heating fluid running through it and to heat up the flow of air which sweeps across the heat-exchange surfaces, and in that the heat storage fluid constitutes a reserve of heat, so that the heat storage fluid is capable of heating up the flow of air which sweeps

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across the heat-exchange surfaces if the circulation of the heating fluid through the heating radiator is temporarily stopped.

21. (cancelled)

22. (currently amended) The heat exchanger as in claims ~~15~~ 1, wherein the heat storage fluid is chosen from paraffins, hydrated salts and eutectic compounds.

23. (currently amended) The heat exchanger as in claims ~~16~~ 18, wherein the heat storage fluid is chosen from paraffins, hydrated salts and eutectic compounds.

24. (currently amended) The heat exchanger as in claims ~~17~~ 19, wherein the heat storage fluid is chosen from paraffins, hydrated salts and eutectic compounds.

25. (cancelled)

26. (currently amended) The heat exchanger as in claim ~~16~~ 24, wherein the heat storage fluid also comprises is water.

27. (new) The heat exchanger as in claim 5, wherein the heating radiator heating fluid is found in the circulating ducts for the heat transfer fluid of the heat exchanger, runs through the circulating ducts and heats up the flow of air which sweeps across the heat-exchange surfaces, and such that the heat storage fluid constitutes a reserve of heat, so that the heat storage fluid is capable of heating up the flow of air which sweeps across the heat-exchange surfaces if the circulation of the heating fluid through the heating radiator is temporarily stopped.